A Love Drug? Oxytocin Hormone Makes Mothers Kinder

By COLUMN by LEE DYE | Good Morning America

Sometimes it seems like what the world really needs is a love drug. But what if we could just produce it in our own brains, making humans more altruistic and interested in helping others, and paving the way for a new mother to give her baby the warm embrace it so desperately needs?

Well, we already do, according to scientists who are studying a hormone produced in the brains of mammals ranging from prairie voles to humans. It is officially known as oxytocin, but it is also called the "love hormone," the "cuddle chemical," and the "hormone of love and bonding."

By whatever name, it can create a little magic, making humans, and even monkeys, a little more humane.

Oxytocin -- not to be confused with the highly addictive pain killer oxycodone -- is critically important to a pregnant woman because it is partly responsible for the nourishment and cuddling she is likely to give her child. There is hope that the hormone could be used to help patients suffering from a range of psychiatric disorders that affect social interactions, including autism and schizophrenia.

Although not fully understood, several studies show just how powerful the hormone can be. Scientists at Bar-Ilan University in Israel measured the natural levels of oxytocin throughout the entire pregnancy, and the postpartum month, of 62 women. The researchers also measured such things as gaze, touching, talking, and showing affection toward the child during the first month of life.

They found a clear correlation between the levels of oxytocin and the amount of attention each new mother paid to her baby. The first trimester of the pregnancy turned out to be the most important because higher levels of the hormone during that period coincided with much more bonding and affection after the birth.

At about the same time as the Israel study, Paul Zak of Claremont University in California was giving doses of oxytocin, and a placebo, to participants who were instructed to split a sum of money with a stranger. The results were "overwhelming," according to that study. Those given oxytocin offered 80 percent more money than those given a placebo.

Researchers in Australia found that the hormone affects many social emotions, not just the good ones. Participants in their study also showed envy and gloating, leading the researchers to conclude that giving the hormone to an aggressive criminal might make him angrier and even more aggressive.

And therein lies a problem. Just how the hormone works is not fully understood, and it's not practical to carry out long-term experiments with humans. Such experiments have been conducted on prairie voles to see how the hormone could affect their social structure, which depends on mutual cooperation. But prairie voles are a lot different from humans.

So scientists at Duke University have turned to monkeys, which are more like us, to see if they could serve as human surrogates in the effort better to understand how the hormone works. If oxytocin works on monkeys like it does on humans, then trials could be possible to see if the hormone is effective over a long period of time. Of conversely, if it might also be potentially harmful, as suggested in a number of human studies.

The first results from Duke are encouraging, according to Michael Platt, director of the university's Institute for Brain Sciences.

Two rhesus monkeys that had been trained to react to key symbols on a computer screen were seated side by side during the experiments. Significantly, rhesus monkeys are "primarily characterized by competition and aggression, and show very weak, if any, inclination toward cooperation," according to the study, published in the Proceedings of the National Academy of Sciences.

Each monkey had his own computer display, and a tube was positioned in front of each monkey's mouth so juice – or reward –could be delivered.

Would they be willing to let the other monkey have a sip of juice, even if they didn't get a sip themselves? Yes, it turns out, consistent with earlier studies at Duke. But they were far more willing to give the juice to their fellow monkey after given a nasal dose of oxytocin, at least if it didn't damage their own chances of getting a swig.

"Thus, (the hormone) robustly enhanced prosocial choices when there was no potential cost to self, but slightly increased selfish choices when there was potential for direct self reward," the study concludes. That's a big change for a monkey known to be surly, and it suggests that the hormone can break down social barriers, a possibility that Platt described as "cool."

The researchers were able to track the eye movement of the monkeys, and the hormone caused each to focus more on the other monkey, so they were paying more attention to a colleague.

The inhaled hormone ended up in the cerebral spinal fluid, so it went right to the area that control's all activities – the brain. So monkeys apparently process the hormone the same way as humans, raising the odds that they would make good surrogates for further study.

However, it's not as tidy as this sounds, because in the first hour or two after getting the hormone, the monkeys actually became more selfish. It took a couple of hours for them to become more social and compassionate.

It's unlikely that this research will lead to a "recreational" drug that would make all of us a little more loving. That "Love Potion Number Nine" celebrated by the musicians that call themselves "The Clovers" is not likely to be on your pharmacist's shelf anytime soon.

Maybe that's best. Remember what happened to that love potion? According to the song, it ended like this:

"But when I kissed a cop down on Thirty-Fourth and Vine, he broke my little bottle of love potion number nine."

There's always a down side.